

ROTARY BUCKLE

DESCRIPTION

BACKGROUND OF THE INVENTION

[Para 1] 1. The field of the invention

[Para 2] The present invention relates to a rotary buckle, and more particularly to a rotary buckle comprising a track away from an opening of a female buckle element along which a directing element of a receiving chamber can be rotated facilitating easy assembly and for positioning closer to the surface of the human body or articles.

[Para 3] 2. Description of related art

[Para 4] Buckles are widely applied in a variety of articles. For example, buckles adapted for holding two stripes mostly comprises a male buckling element and a female buckling element. Regardless of the style, buckles are designed to provide desirable functions through simple operation.

[Para 5] Referring to Figs. 11 and 12, an exploded view of a conventional buckle and a view showing the swinging aspect of the conventional buckle in buckled position are shown. The conventional buckle comprises a male buckling element A and a female buckling element B. The male buckling element A comprises a buckling plate A1 at a distal end thereof, wherein the buckling plate A1 comprises a buckling groove A11 formed at a center thereof. The female buckling element B comprises a through channel B1, and a round resilient plate B2 having an inclined face B21 respectively formed on a bottom two sides thereof is positioned at the center above the through channel B1, wherein the two inclined faces B21 is attached to an arch shaped inclined protruded buckle B22 at distal ends thereof. For buckling the male buckling element A to the female buckling element B, the buckling plate A1 of the male buckling element A is penetrated through the through channel B1 of the female buckling element B. Meanwhile, the buckling plate A1 lifts up the

round resilient plate B2 and the male buckling element A is continued to be forced through for buckling the protruded buckle B22 positioned inside into the buckling groove A11 of the buckling plate A1, and the round resilient plate B2 releases from the supporting stress and the shape thereof is restored thereby. Because the angle of the buckling groove A11 is bigger than the arch length of the protruded buckle B22, therefore the male buckling element A and the female buckling element B are allowed to swing along a certain limited angle.

[Para 6] Although such conventional design allows the male and female buckling elements to swing in order to closely fit to the surface of the body or articles, however, the structure thereof is too complicated. Besides, the assembly of the conventional buckle is difficult and thereby increases the manufacturing cost. Therefore, it is highly desirable to improve the assembly work, design and reduce the manufacturing cost.

SUMMARY OF THE INVENTION

[Para 7] Accordingly, in the view of the foregoing, the present inventor makes a detailed study of related art to evaluate and consider, and uses years of accumulated experience in this field, and through several experiments, to create a new rotary buckle. The present invention provides an innovated attractive rotary buckle with excellent degree of rotation.

[Para 8] According to an aspect of the present invention, a track is disposed on an edge portion of a female buckling element opposite to an opening thereof along which a directing element of a receiving chamber can be rotated. Furthermore, a fitting portion of a male buckling element can be penetrated into the opening of the female buckling element for positioning the male buckling element therein. Because the receiving chamber can be rotated up to 90 degrees along the track of the female buckling element, the male buckling element and the female buckling element can be properly coupled together even on a non-smooth or rough surface. Thus, the rotary buckle of the present invention can be closely attached to the surface of the body or articles.

Furthermore, assembly of the components of the rotary buckle can be easily implemented and therefore the manufacturing cost can be effectively reduced.

BRIEF DESCRIPTION OF THE DRAWING

[Para 9] For a more complete understanding of the present invention, reference will now be made to the following detailed description of preferred embodiments taken in conjunction with the following accompanying drawings.

[Para 10] Fig. 1 is an exploded view of a rotary buckle according to an embodiment of the present invention.

[Para 11] Fig. 2 is an exploded view of a rotary buckle while a receiving chamber is joined to a female buckling element.

[Para 12] Fig. 3 is a sectional side view before assembly of the rotary buckle according to an embodiment of the present invention.

[Para 13] Fig. 4 is a sectional side view after assembly of the rotary buckle according to an embodiment of the present invention.

[Para 14] Fig. 5 is an elevational view of a rotary buckle according to an embodiment of the present invention.

[Para 15] Fig. 6 is a view while separating the male buckling element from the female buckling element according to an embodiment of the present invention.

[Para 16] Fig. 7 is a top view showing after the female buckling element is buckled to the male buckling element according to an embodiment of the present invention.

[Para 17] Fig. 8 is a view of a rotary buckle according to a preferred embodiment of the present invention.

[Para 18] Fig. 9 is a view of a rotary buckle according to another embodiment of the present invention.

[Para 19] Fig. 10 is the sectional side view illustrating while a knitted belt is fitted to the rotary buckle according to an embodiment of the present invention.

[Para 20] Fig. 11 is an exploded view of a conventional buckle.

[Para 21] Fig. 12 is a view showing the swinging aspect of the conventional buckle in buckled position.

DETAILED DESCRIPTION OF EMBODIMENTS

[Para 22] Reference will be made in detail to the preferred embodiments of the invention, examples of which are illustrated in the accompanying drawings. Wherever possible, the same reference numbers are used in the drawings and the description to refer to the same or like parts.

[Para 23] Referring to Figs. 1 and 2, an exploded view of the rotary buckle and an exploded view of the rotary buckle while the receiving chamber is joined to the female buckling element according to an embodiment of the present invention are shown. The rotary buckle comprises a female buckling element 1 and a male buckling element 2.

[Para 24] The female buckling element 1 comprises an opening 11 comprising a buckling portion 111 on an upper surface at one side thereof and a track 12 is disposed away from the opening 11 thereof, along which a directing element 131 of a receiving chamber 13 can be rotated up to 90 degrees.

[Para 25] The male buckling element 2 comprises a fitting portion 21, wherein a latching portion 211 corresponding to the buckling portion 111 of the female buckling element 1 is disposed at a side of fitting portion 21, and a receiving chamber 22 is disposed at a side opposite to the fitting portion 21.

[Para 26] Referring to Figs. 3, 4, 5 and 6, a sectional side view showing before and after assembly of the rotary buckle according an embodiment of the present invention, an elevational view and a view while separating the male buckling element from the female buckling element according to an embodiment of the present invention are shown. The female buckling element 1 and the male buckling element 2 can be joined together by fitting the fitting portion 21 of the male buckling element 2 into the opening 11 of the female buckling element 1, wherein the latching portion 211 of the male buckling element 2 protrudes out of the buckling portion 111 on an upper surface of the female buckling element 1 for securely positioning the male buckling

element 2. To separate the female buckling element 1 and male buckling element 2, the latching portion 211 of the male buckling element 2 is pressed downwards to resiliently release the latching portion 211 from the resilient support of the buckling portion 111. Thus, the male buckling element 2 can be easily and quickly pulled out from the female buckling element 1 in opposite direction.

[Para 27] Furthermore, Fig. 7 is a top view showing after the female buckling element is buckled to the male buckling element according to the embodiment of the present invention. For buckling the female buckling element 1 with male buckling element 2, the directing element 131 of the receiving chamber 13 is turned about 90 degrees along the track 12 of the female buckling element 1, thus the rotary buckle can be provided with an excellent rotating angle.

[Para 28] Now referring to Figs. 8 and 9, wherein Fig. 8 shows a view of the rotary buckle according to a preferred embodiment of the present invention and Fig. 9 shows a view of the rotary buckle according to another embodiment of the present invention. As shown, a track 23 may also be disposed at a side of the male buckling element 2 away from the fitting portion 21 and the female buckling element 1 may be without the track 12. Thus, the receiving chamber 22 with a directing element 221 can be rotated along the track 23. Alternatively, the female buckling element 1 and the male buckling element 2 may comprise the tracks 12 and 23 respectively for rotating the receiving chamber 13 with the directing element 131 and receiving chamber 22 with the directing element 221 along the tracks 12 and 23 respectively. Thus, the rotary buckle can be provided with an excellent rotating angle.

[Para 29] Furthermore, referring to Fig. 10, a sectional side view illustrating while a knitted belt is fitted to the rotary buckle according to an embodiment of the present invention is shown. For fitting a knitted belt 3 to the rotary buckle, the knitted belt 3 is put through the receiving chamber 13 of the female buckling element 1 penetrated outward from the bottom, and another knitted belt 3 is used to position to the receiving chamber 22 of the male buckling element 2.

[Para 30] The excellent rotation characteristics of the rotary buckle of the present invention allow to be suitably applied in golf bag, soft bag or any similar fashionable articles. The excellent rotation characteristics of the rotary buckle of the present invention allow the rotary buckle to closely attach to the surface of the articles or body. The simple structure of the rotary buckle of the present invention allows easy assembly thereof and therefore the manufacturing cost can be effectively reduced. The size of the rotary buckle according to an embodiment of the present invention is not limited and the excellent rotation angle of the rotary buckle substantially facilitate buckling and unbuckling operations and also can closely attach to the surface of the articles or body.

While the invention has been described in conjunction with a specific best mode, it is to be understood that many alternatives, modifications, and variations will be apparent to those skilled in the art in light of the foregoing description. Accordingly, it is intended to embrace all such alternatives, modifications, and variations in which fall within the spirit and scope of the included claims. All matters set forth herein or shown in the accompanying drawings are to be interpreted in an illustrative and non-limiting sense.